Amendments to the Claims :

This listing of claims will replace all prior versions, and listings, of claims in the application :

Listing of Claims :

1. (Currently amended) A method for compressing multi-dimensional data for use with data processing and data transmission systems, comprising the steps of:

a) receiving the multi-dimensional data at a first port of said data processing system, the multi-dimensional data comprising a plurality of data vectors indicative of an image of an object;

b) using electronic circuitry to separate [[~~separating~~]] the plurality of data vectors into at least two clusters based on similarity of the data vectors such that similar vectors are grouped together into one of said at least two clusters; and,

c) providing each of the at least two clusters to at least a compression engine for processing, results from said at least a compression engine being for transmission using said transmission system;

wherein the data vectors are partitioned into the at least two clusters based on the distance of a data vector to the centroid of each of the at least two clusters

and wherein said data vectors are spectral data vectors having multi-spectral data

and wherein said separation of said data vectors into clusters reduces artificial visual boundaries in a decompressed version of said image.

2. (Original) A method for compressing multi-dimensional data as defined in claim 1 wherein the data vectors are partitioned in a geometrically irregular fashion.

3. (Original) A method for compressing multi-dimensional data as defined in claim 1 wherein the at least a compression engine comprises at least two compression engines and comprising the step c1) of assigning each of the at least two clusters to a respective compression engine of the at least two compression engines for simultaneously processing the at least two clusters.

4. (Original) A method for compressing multi-dimensional data as defined in claim 1 comprising the step of processing the at least two clusters by performing the steps of:

d) determining a plurality of codevectors through training for approximating each of the data vectors of a cluster of the at least two clusters with a fidelity above a predetermined threshold based on the data vectors contained in the cluster; and,

e) encoding each of the data vectors of a cluster using a codevector of the plurality of codevectors.

5. (Original) A method for compressing multi-dimensional data as defined in claim 4 comprising the steps of:

f) storing the plurality of codevectors in a codebook of a cluster; and,

g) storing in an index map of a cluster an index for each of the data vectors in the cluster indicative of a codevector's location within the codebook of the cluster.

6. (Original) A method for compressing multi-dimensional data as defined in claim 5 wherein the steps d) to g) are implemented using SAMVQ.

7. (Original) A method for compressing multi-dimensional data as defined in claim 5 comprising the step of providing the index map and the codebook for transmission.

8. (Original) A method for compressing multi-dimensional data as defined in claim 1 wherein the size of the at least two clusters is approximately similar within predetermined limits of difference.

9. (Original) A method for compressing multi-dimensional data as defined in claim 8 comprising the step of:

b1) adaptively controlling the size of each of the at least two clusters by splitting and merging the at least two clusters.

Claim 10 (Previously Cancelled)

11. (Original) A method for compressing multi-dimensional data as defined in claim 4 wherein the multi-dimensional data comprises data vectors of a regional data subset of a continuous data flow, the data vectors being indicative of a region of the image of an object.

Claims 12-16 (Previously Cancelled)

17.(Previously Amended) A method for compressing multi-dimensional data as defined in claim 1

wherein said plurality of data vectors are of a regional data cube of a continuous data flow and are data vectors received within a specified period of time.

Claims 18-29 (Previously Cancelled)

30. (Currently Amended) A storage medium having stored thereon at least an executable command for when executed resulting in performance of the steps of:

a) receiving the multi-dimensional data, the multi-dimensional data comprising a plurality of data vectors indicative of an image of an object;

b) separating the plurality of data vectors into at least two clusters based on similarity of the data vectors such that similar data vectors are grouped together into at least one of said at least two clusters;

c) providing each of the at least two clusters to at least a compression engine for processing;

d) determining a plurality of codevectors through training for approximating each of the data vectors of a cluster of the at least two clusters with a fidelity above a predetermined threshold based on the data vectors contained in the cluster;

e) encoding each of the data vectors of a cluster using a codevector of the plurality of trained codevectors;

f) storing the plurality of trained codevectors in a codebook; and,

g) storing in an index map an index for each of the data vectors of a cluster indicative of a codevector's location within the codebook

wherein the data vectors are partitioned into the at least two clusters based on the distance of a data vector to the centroid of each of the at least two clusters

and wherein said data vectors are spectral data vectors having multi-spectral data

and wherein said separation of said data vectors into clusters reduces artificial visual boundaries in a decompressed version of said image.

31. (Currently Amended) A system for compressing multi-dimensional data comprising:

a first port for receiving the multi-dimensional data;

electronic circuitry in data communication with the first port, the electronic circuitry for performing the steps of:

a) receiving the multidimensional data, the multi-dimensional data comprising a plurality of data vectors indicative of an image of an object;

b) separating the plurality of data vectors into at least two clusters based on similarity of the data vectors such that data vectors with similar characteristics are grouped together into one of said at least two clusters;

c) providing each of the at least two clusters to at least a compression engine for processing;

d) determining a plurality of codevectors through training for approximating each of the data vectors of a cluster of the at least two clusters with a fidelity above a predetermined threshold based on the data vectors contained in the cluster;

e) encoding each of the data vectors of a cluster using a codevector of the plurality of trained codevectors;

f) storing the plurality of trained codevectors in a codebook; and,

g) storing in an index map an index for each of the data vectors of a cluster indicative of a codevector's location within the codebook;

and,

a second port in data communication with the electronic circuitry for providing the regional codebook and the regional index map;

wherein said multi-dimensional data comprises a multi-dimensional data cube and

wherein the data vectors are partitioned into the at least two clusters based on the distance of a data vector to the centroid of each of the at least two clusters

and wherein said data vectors are spectral data vectors having multi-spectral data

and wherein said separation of said data vectors into clusters reduces artificial visual boundaries in a decompressed version of said image.

32. (Original) A system for compressing a continuous data flow as defined in claim 31 wherein the electronic circuitry comprises at least a processor.

Claims 33-34 (Previously Cancelled)